

## REMARKS/ARGUMENTS

### Claim Objections

The Office objected **claims 19-20** for various informalities. The applicant agrees and amended the claims accordingly.

### 35 USC §112, 2<sup>nd</sup> paragraph

The Office rejected **claims 3, and 11-16** as being indefinite for use of the term "the ratio" in claim 3 and the phrase "the first and second portions" in claim 11. The applicant agrees and amended claims 3 and 11 accordingly.

### 35 USC §102

The Office rejected **claim 1** as being anticipated by Yao et al. (U.S. Pat. No. 6,166,050). The applicant appreciates the examiner's suggestion on structural recitation and amended claim 1 accordingly.

As amended, claim 1 expressly requires that the absorber has first and second vapor ports fluidly coupled to the feed gas separator to separately receive a first and a second portion of a feed gas vapor, has first and second liquid ports fluidly coupled to the feed gas separator to separately receive a first and a second portion of a feed gas liquid, and further has first and second overhead ports fluidly coupled to a downstream distillation column to separately receive a first and a second portion of a downstream distillation column overhead.

Therefore, in view of the amendments, claim 1 should no longer be deemed anticipated by Yao et al.

### 35 USC §103

The Office rejected **claims 2-5, and 9-10** as being obvious over Yao et al. in view of Jain et al. (U.S. Pat. No. 6,453,698). Applicant respectfully disagrees for various reasons, especially in view of the amendments herein.

As amended herein, claim 1 expressly requires an absorber having first and second liquid ports coupled to a feed gas separator to separately receive first and second portions of a feed gas

liquid, and further having first and second overhead ports coupled to a downstream distillation column to separately receive first and second portions of a downstream distillation column overhead. Such absorber is neither taught nor suggested in the cited art. It is noted that Yao's feed gas liquid is fed via a single port to the absorber, and that the liquid portion of the distillation column overhead product is used in conventional manner as distillation column reflux while the vapor portion of the distillation column overhead product is used as absorber reflux.

In contrast, the liquid portion of the claimed configuration is used as absorber reflux while the vapor portion is used for ethane re-absorption at the bottom of the absorber. Such is neither taught nor suggested in Yao and/or Jain. Consequently, there can also be no control unit with the claimed functionality, literally or inherently. Therefore, in view of the above amendments and arguments, the rejection should be no longer sustained.

The Office rejected **claim 6** as being obvious over Yao et al. in view of Campbell et al. (U.S. Pat. No. 6,453,698). Applicant respectfully disagrees for various reasons.

The examiner argued that "...wherein Yao discloses wherein an overhead (61) is fed to the bottom of the absorber..." Such argument is not persuasive as Yao's 'overhead' (61) is the vapor phase of the bottom product of the absorber, which can not be equated with the distillation column overhead. With respect to the remaining elements in claim 6 (via claim 1), the same defects and arguments as provided above apply. Therefore, the rejection should be no longer sustained.

The Office rejected **claims 11, and 13-20** as being obvious over Yao et al. in view of Campbell et al. and Jain et al. Applicant once more respectfully disagrees for various reasons, especially in view of the amendments herein.

Regarding the examiner's arguments in (i) the office appeared to argue that Campbell's use of distillation overhead as stripping gas would be a well-known source of stripping gas and then argues that use of such system in Yao would be motivated by increase of separation of feed constituents and increase in product purity. While such argument may be valid for Campbell, transfer of the stripping system of Campbell to Yao is not motivated as Yao already strips the absorber with the heated vapor fraction from the bottom product of the absorber.

It is well known that a statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01 IV. Instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. In the instant case, the examiner's argument is not persuasive as Yao already achieves desirable separation of feed constituents and product purity. Indeed, such modification would change the principle of operation of the prior art invention being modified, and as such the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Regarding the examiner's arguments in (ii)/(iv) the office also appeared to argue that since Jain teaches adjustment of feed gas vapor streams, the claimed adjustment of the three ratios of streams as claimed would be obvious. While Jain teaches adjustment of feed gas vapor streams, neither Yao, nor Campbel and/or Jain teach adjustment of the flow ratio between the first and second portions of the distillation column overhead to control recovery of a desired product in a bottom product of the distillation column.

Regarding the examiner's arguments in (iii) the office pointing top stream 35a appeared to state that Campbell would teach introduction of first and second portions of a feed stream at different locations into the absorber. The applicant can not agree as 35a is used as an alternate stream. There is no teaching in Campbell that both routes are taken. The liquid is either combined with vapor portion 33, or alternatively, fed via 35a to the column.

Therefore, for the above arguments and amendments herein, the rejection should no longer be maintained.

**Request For Allowance**

Claims 1-6 and 9-11, and 13-20 are pending in this application. The applicant requests allowance of all pending claims.

Respectfully submitted,  
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